

Setting Up an Earned Value Management System (EVMS):

Approach and Lessons Learned

presented to the

**Society of Information Management
and
Performance Management Association**

by

Mr. John J. Magill

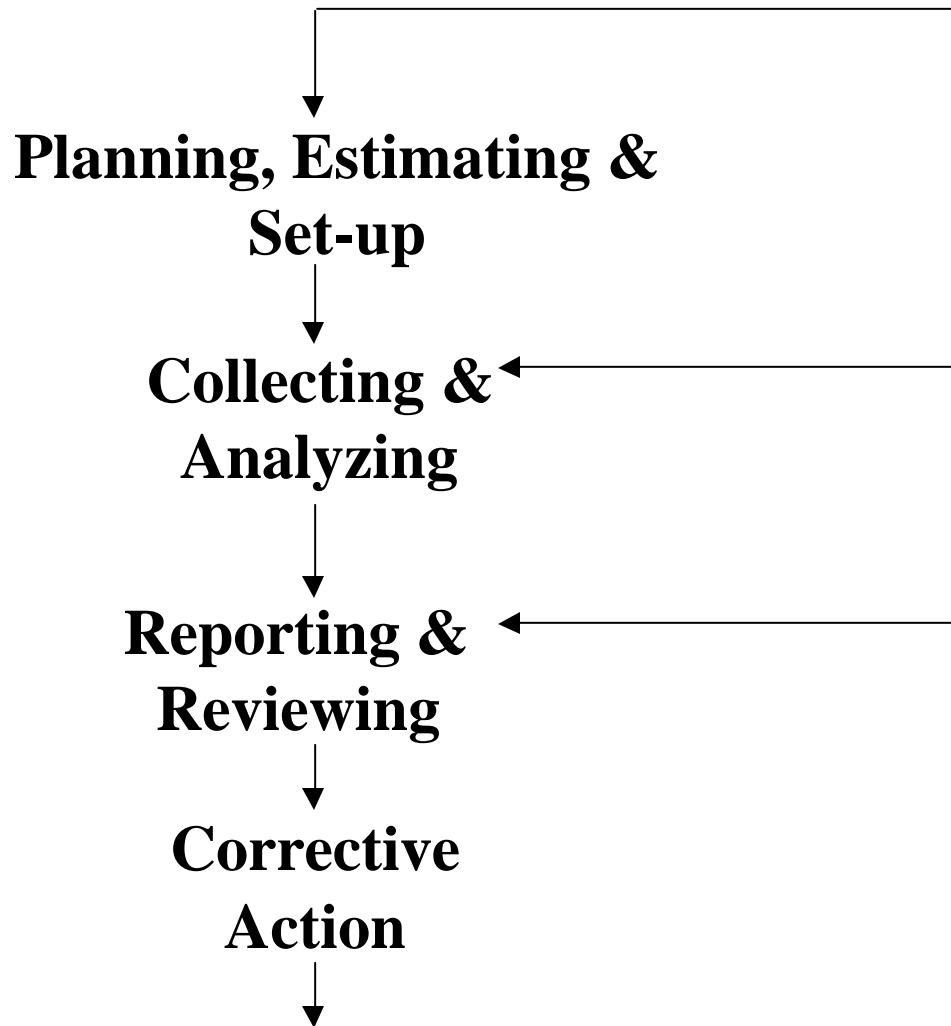
GTE Government Systems Corporation

May 22, 1997

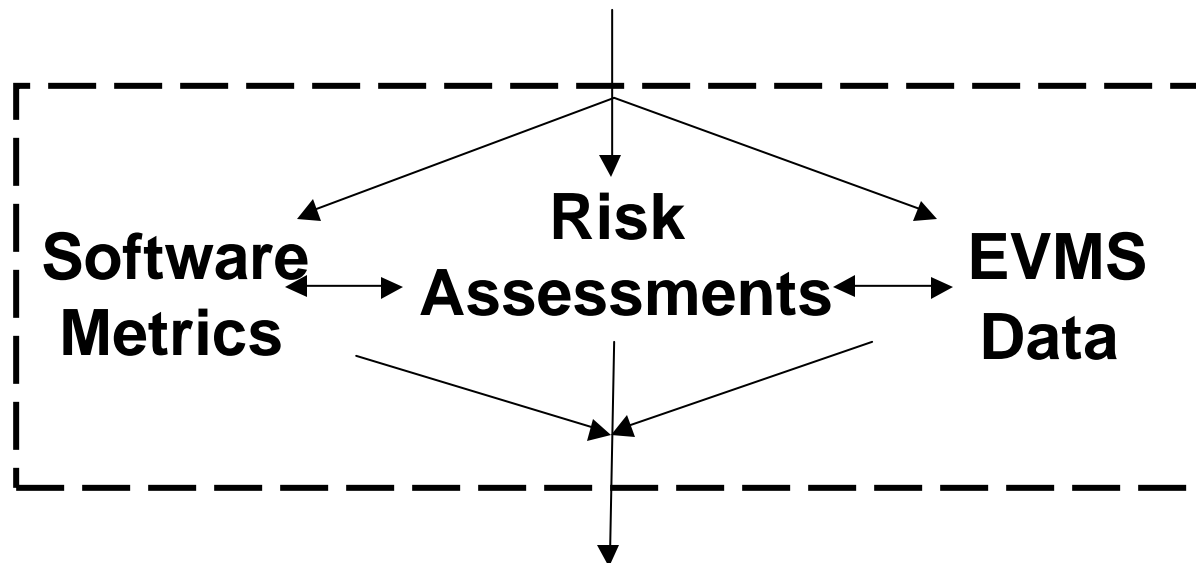
Outline

- **Describe the activities taken to establish an Earned Value Management System (EVMS) for visibility to the technical, cost and schedule progress on a large information systems program**
- **Present lessons learned from program experience for the benefit of other projects considering an EVMS.**

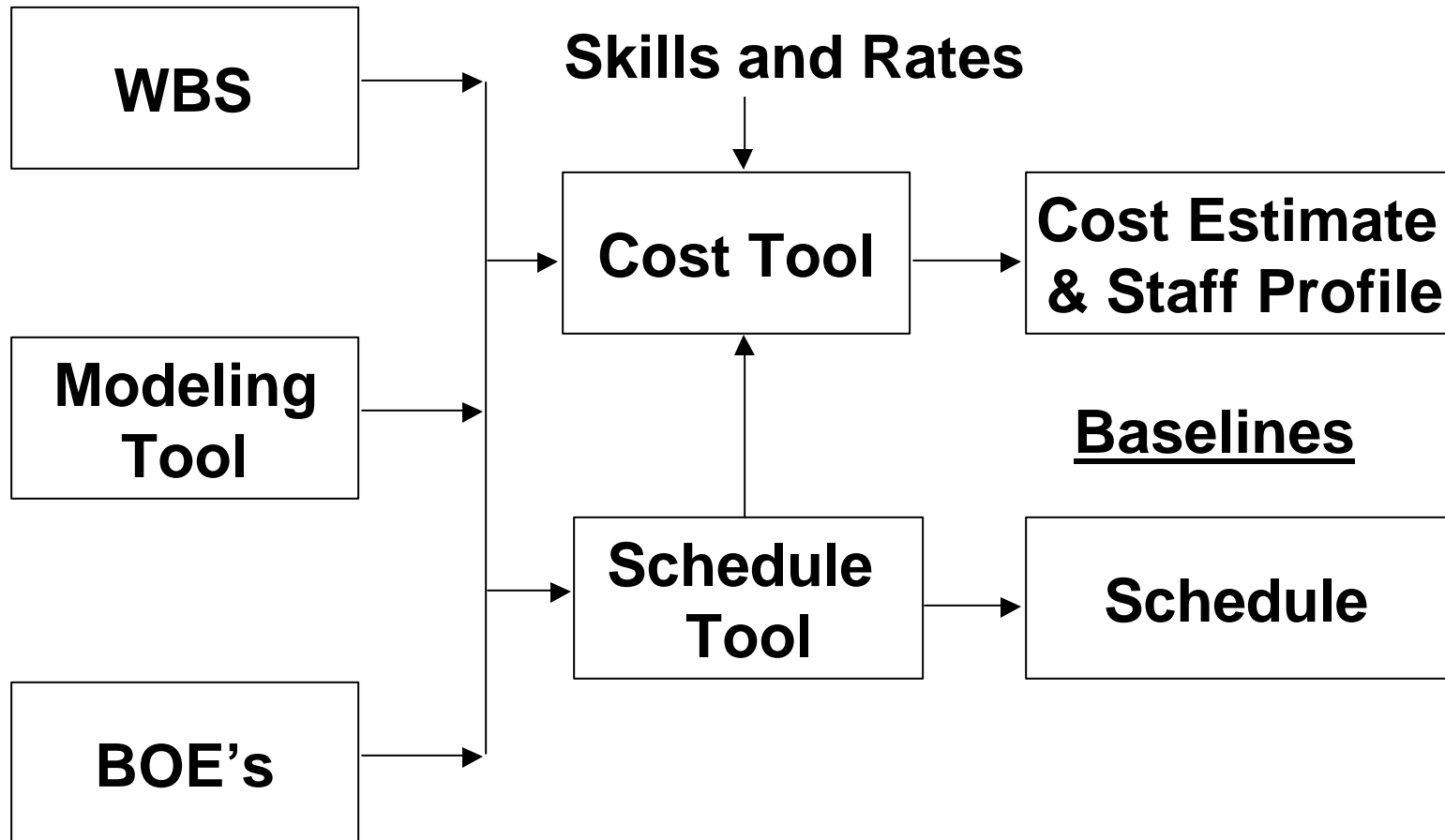
An EVMS is a Continuous Process



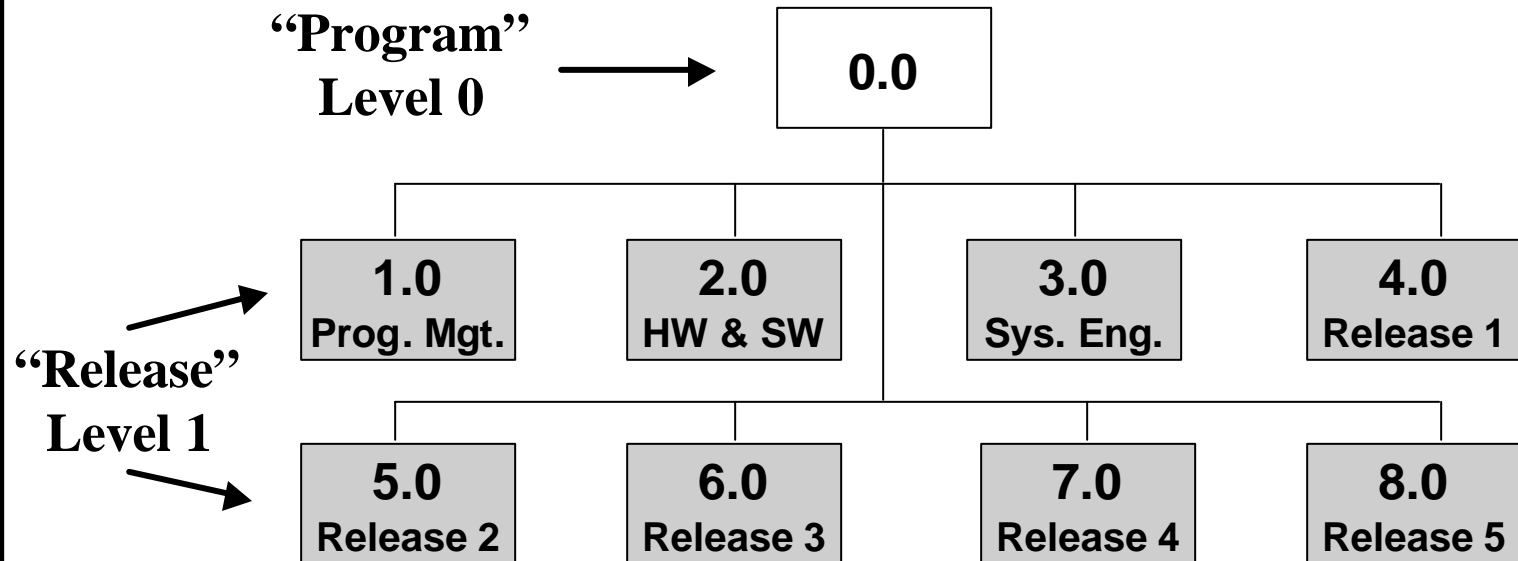
Each Phase Involves:



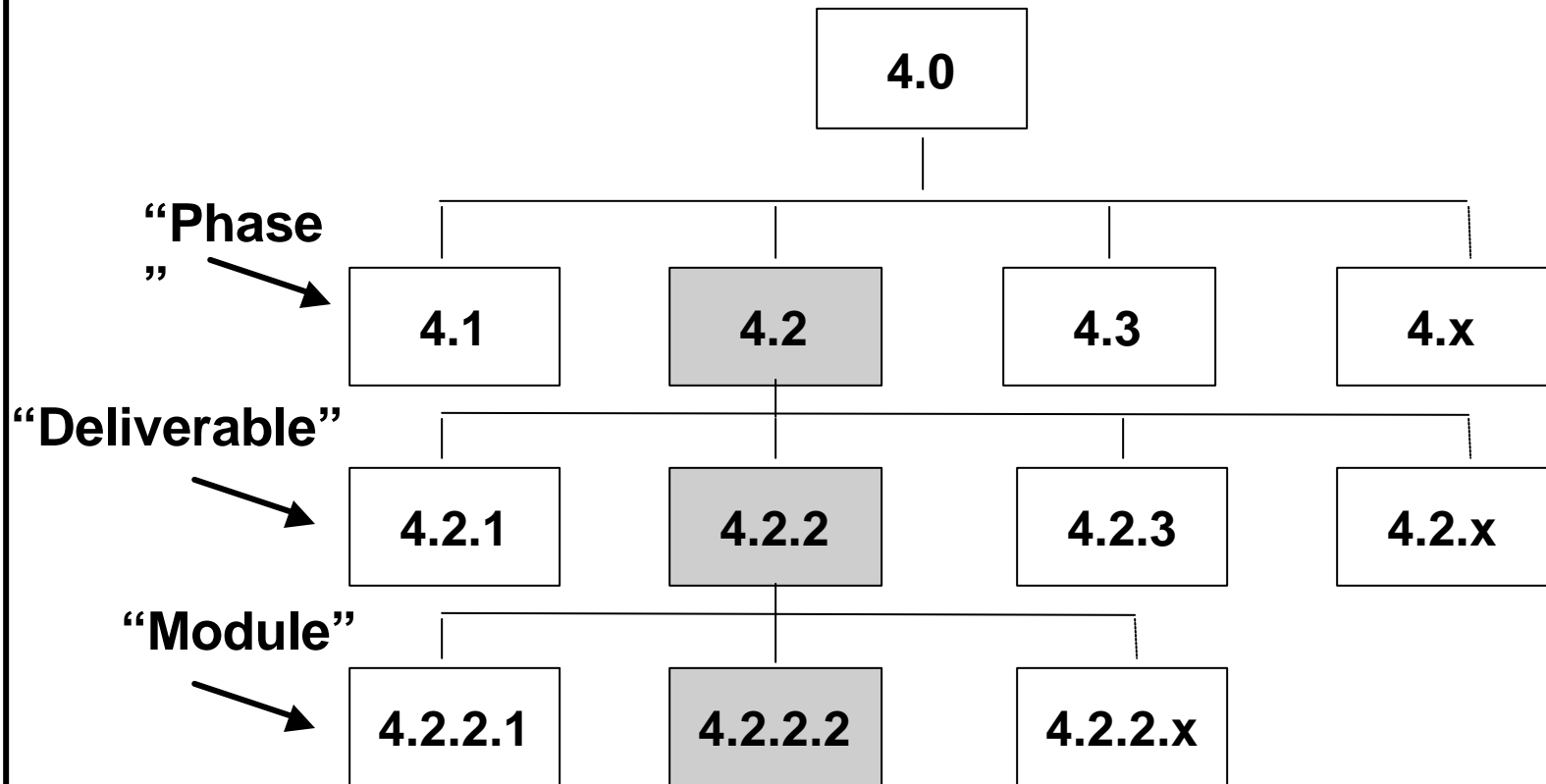
Planning & Estimating Process



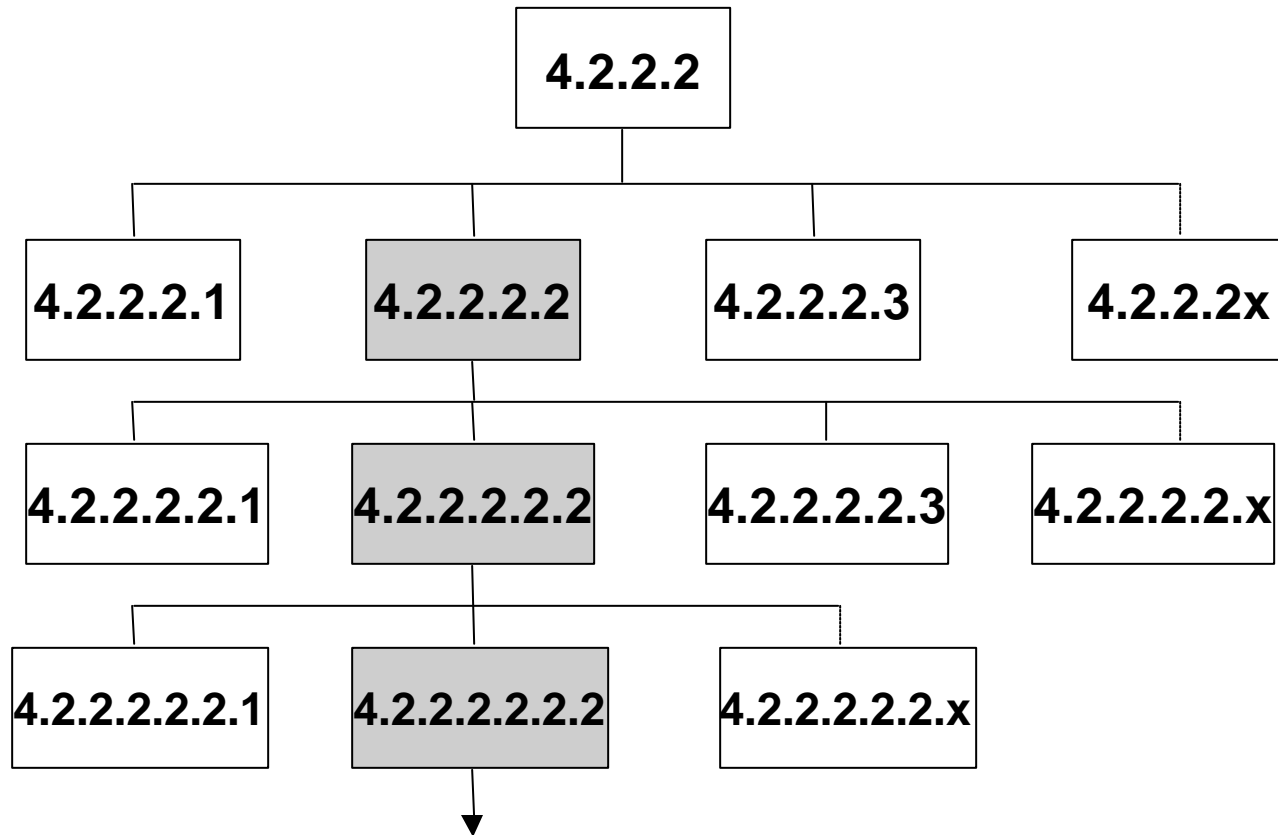
WBS Top Level Views



WBS Levels 2, 3 and 4 Views



WBS Levels 5 and below



Estimate Work

- Software design and development work - SLIM modeling tool
- Requirements Analysis, Systems Engineering, Testing and other work - historical data, experience, percentage of development, etc.
- Program Management - level of effort
- Hardware and Software procurement - catalog prices
- Travel - historical data and experience.

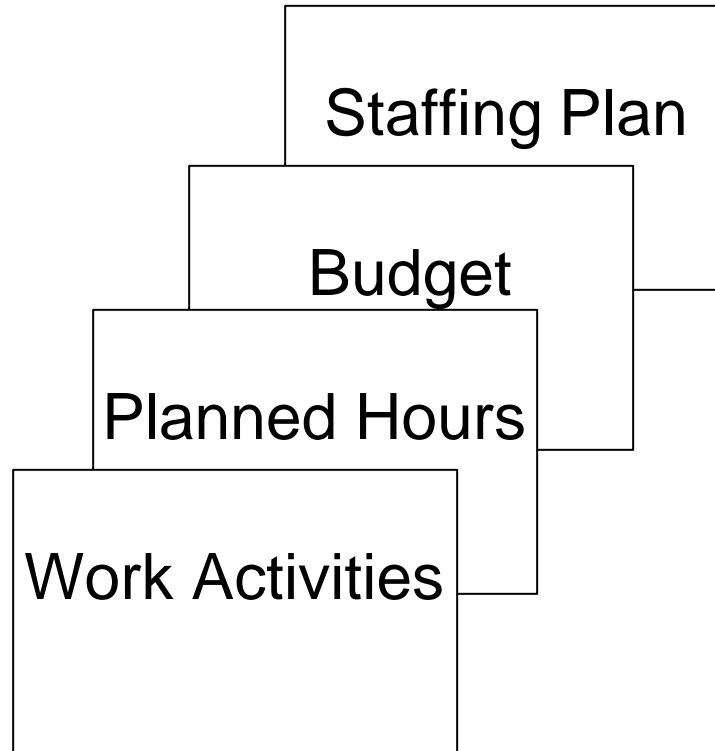
Prepare Detailed Schedule

- List all WBS activities
- Enter planned Start and End dates
- Establish duration of activities
- Link activities to reflect dependencies
- Review both Gantt and Pert chart formats
- Correct inconsistencies

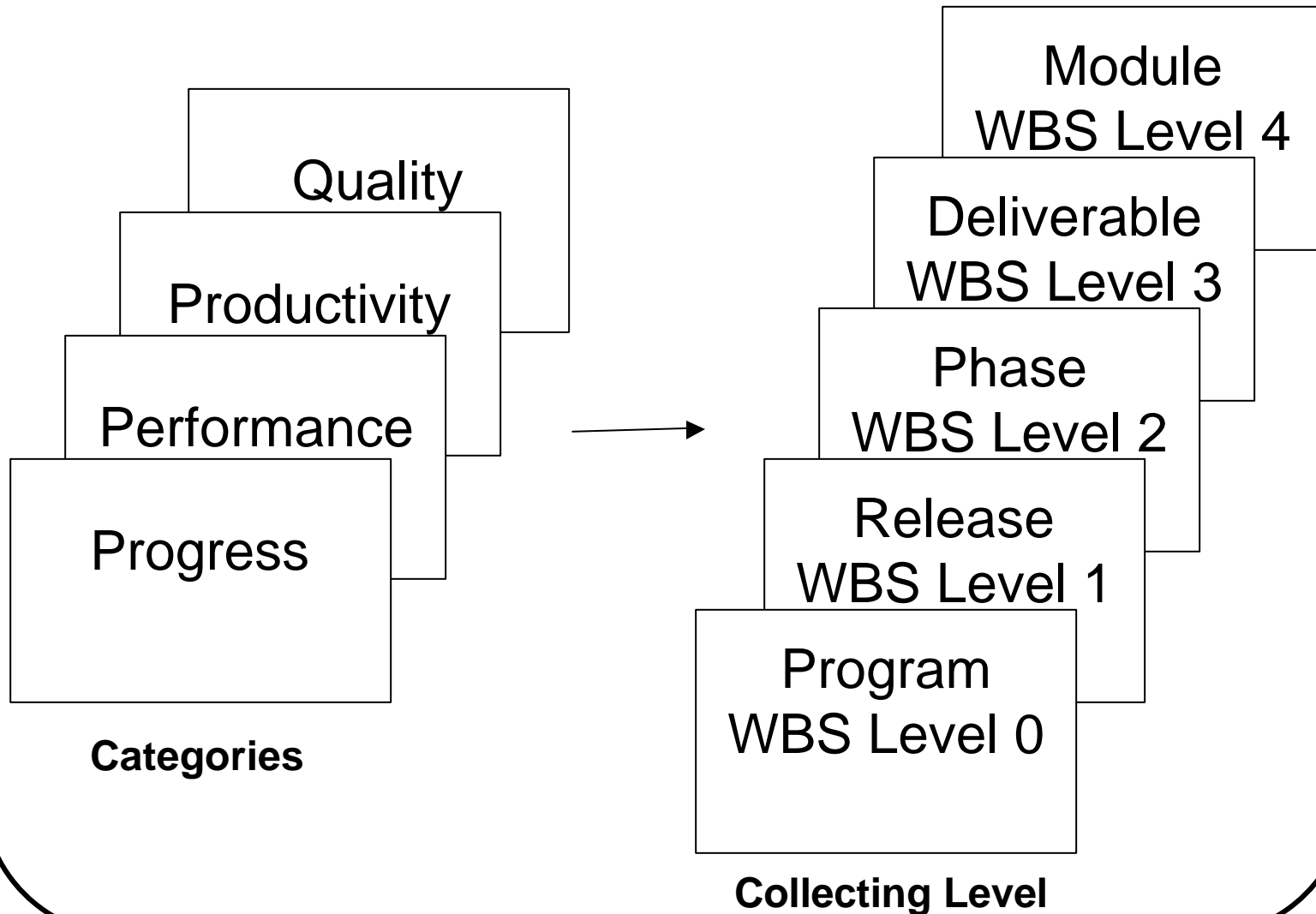
What Else is Needed?

- A system to account for all direct and indirect costs on the project
- Job codes for all work activities
- Reporting period defined
- Detailed work packages
- A process to determine actual work completed during a reporting period

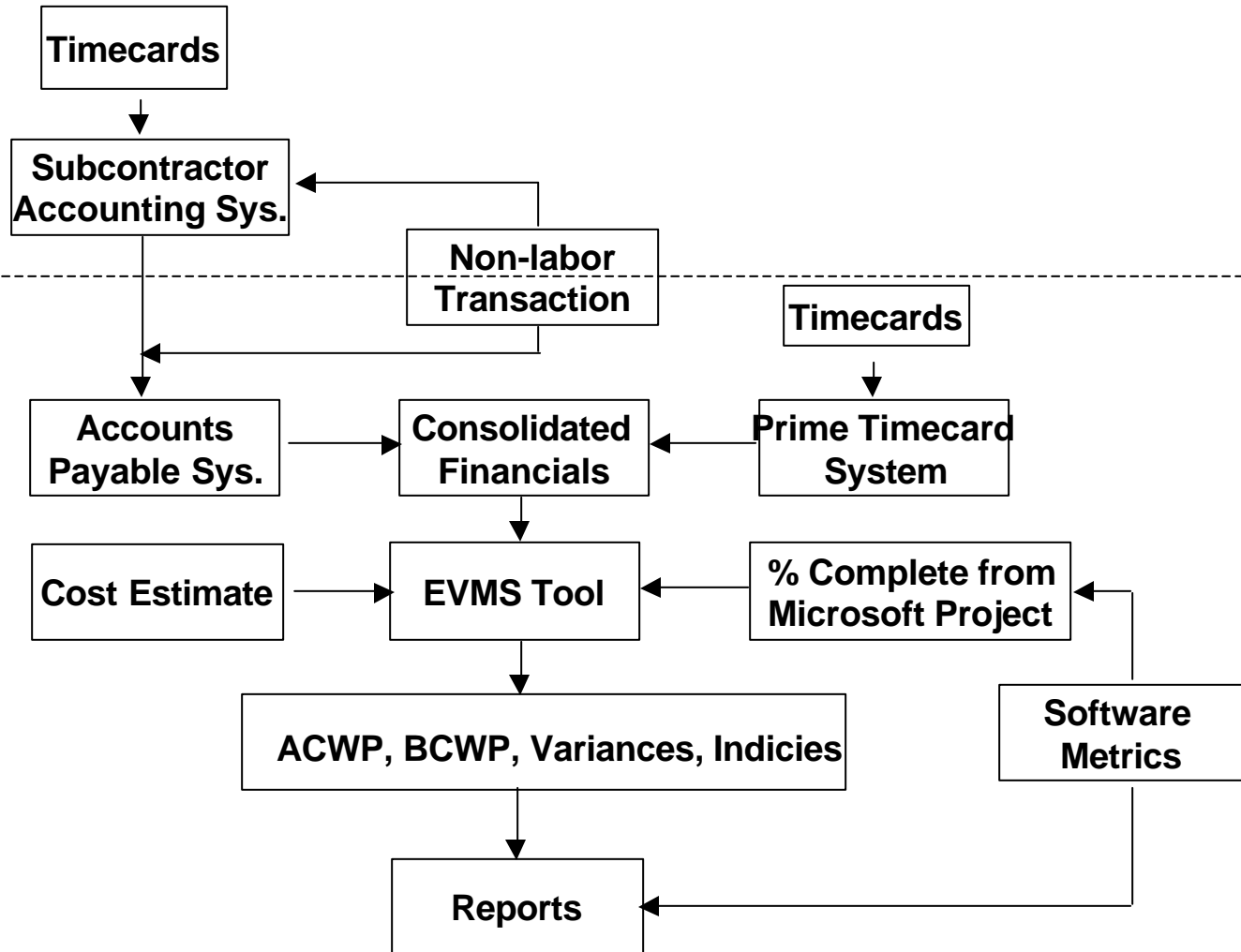
Release Work Packages



Establish Software Metrics



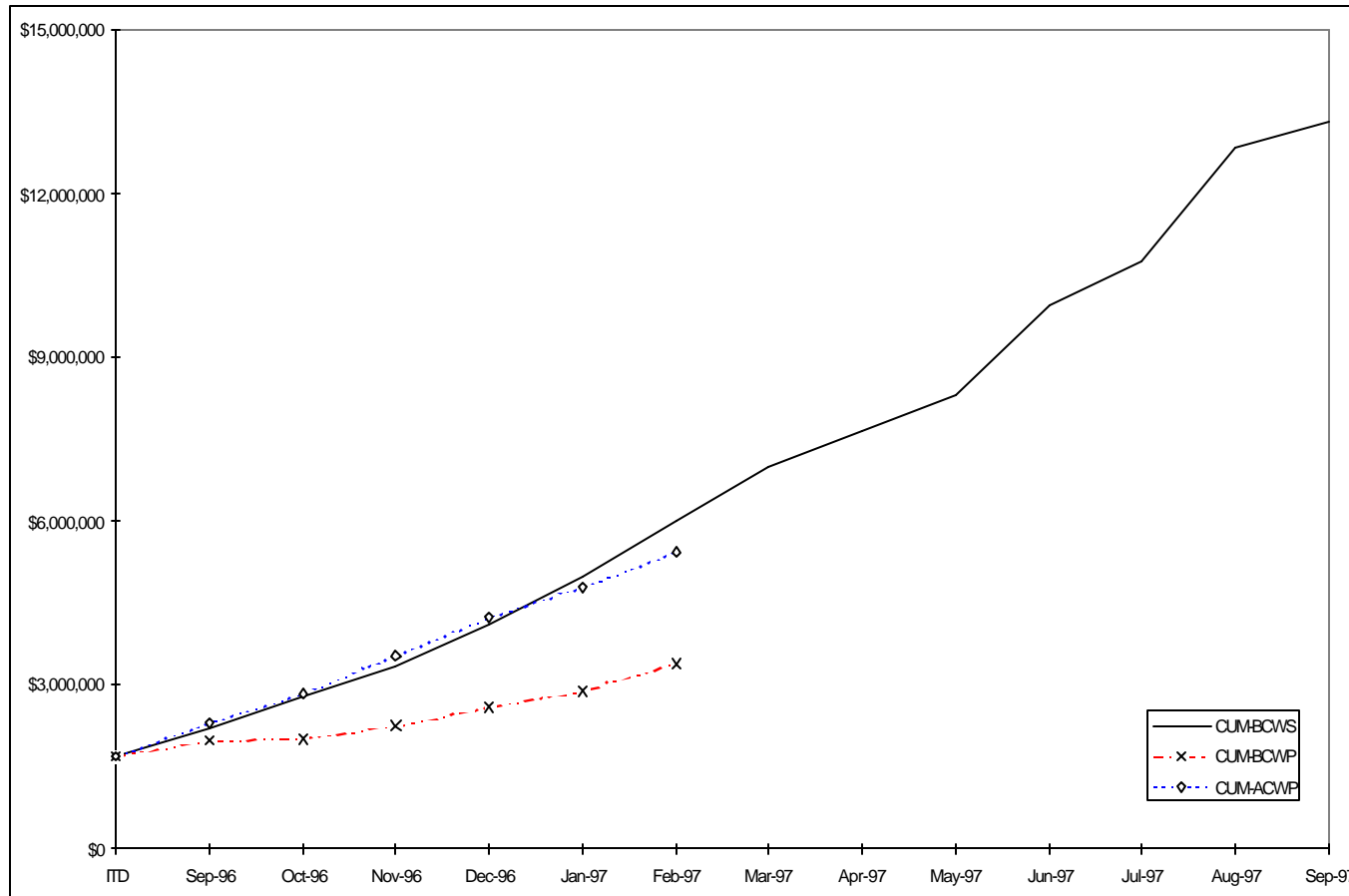
Collecting EVMS Data



Data Analysis

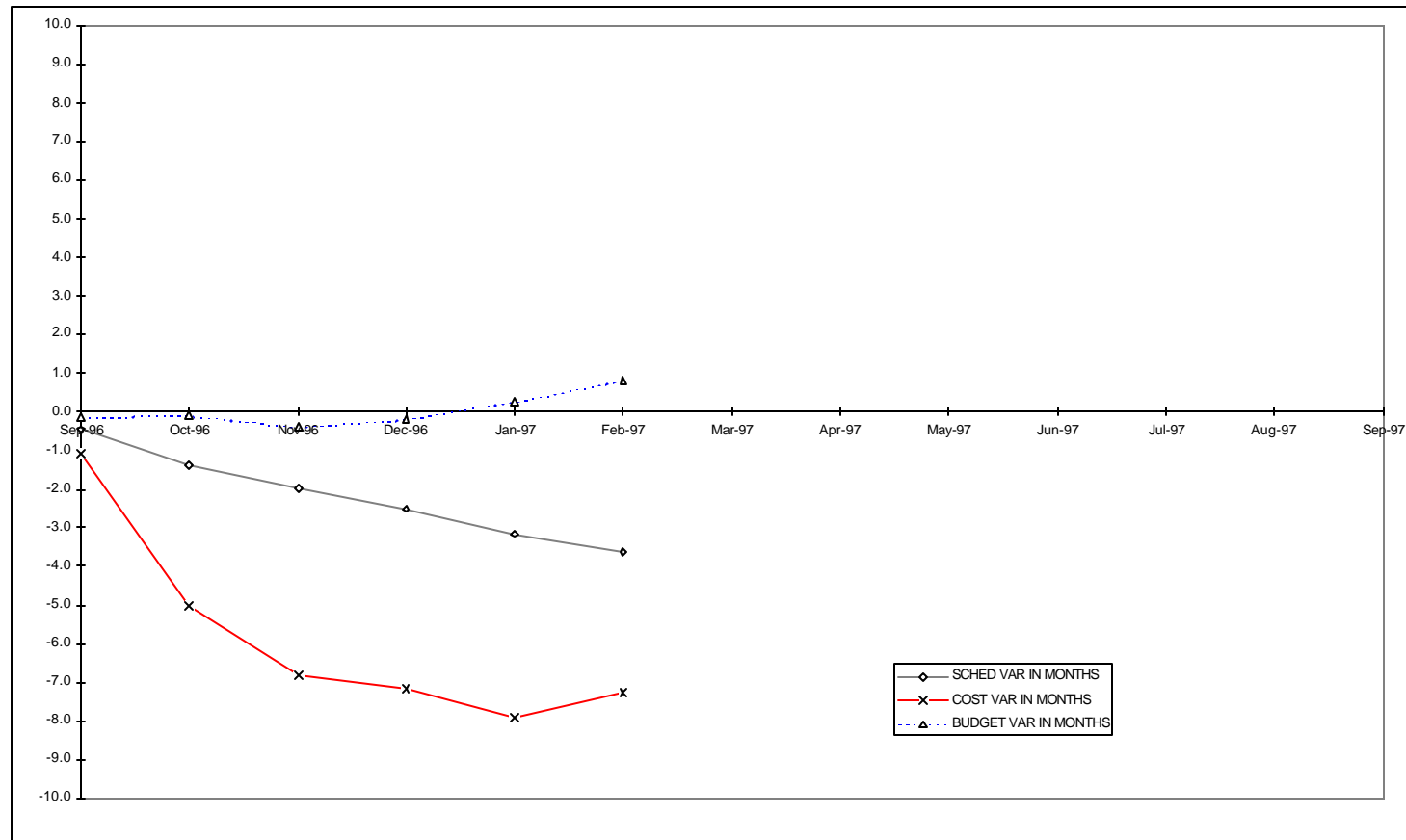
- Compare ACWP & BCWP to BCWS
 - Schedule Variance
 - Cost Variance
 - Schedule Performance Index (efficiency)
 - Cost Performance Index (efficiency)
- Compare EVMS data to Software Metrics
- Evaluate Performance to Past and Future Risks

Example Performance Data

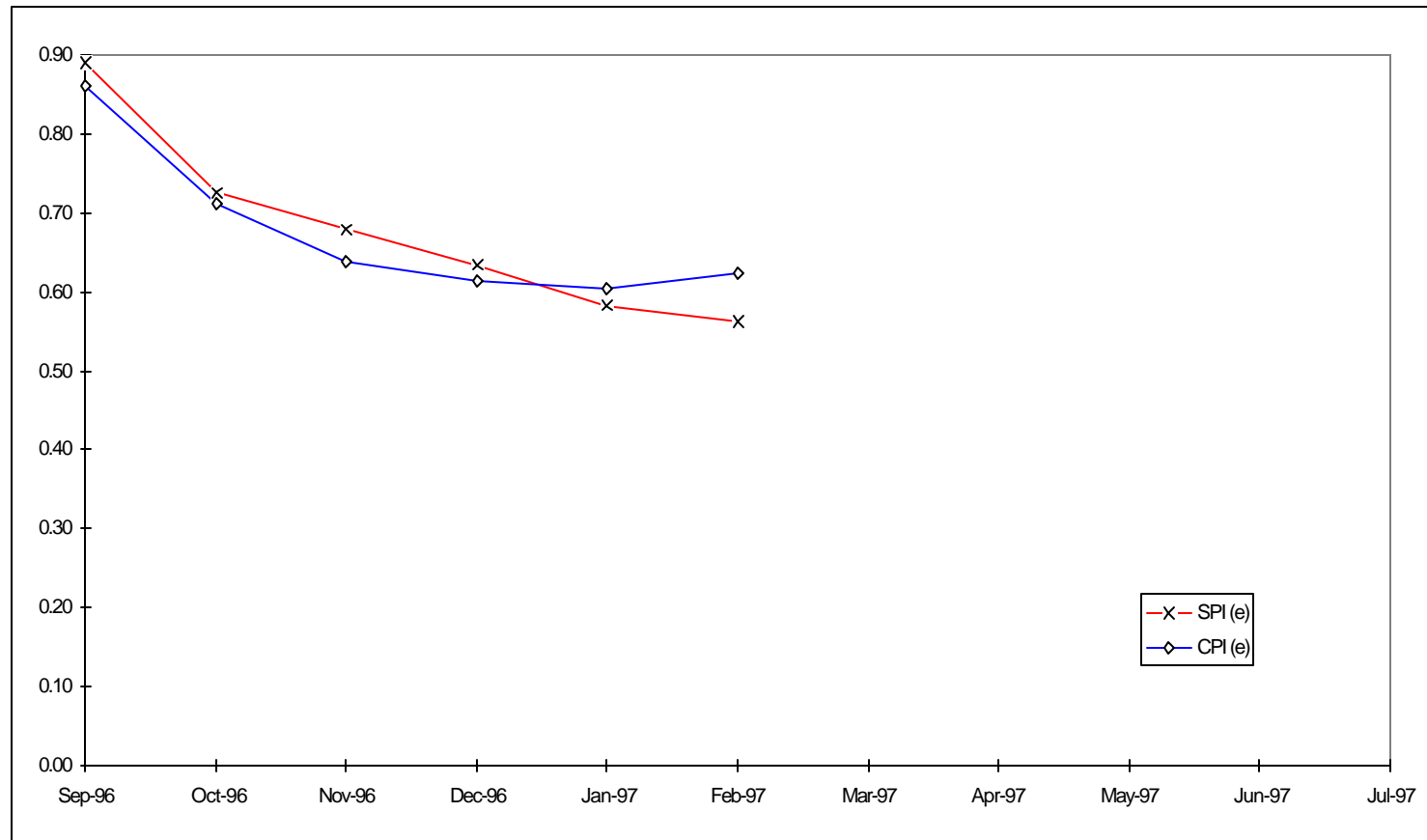


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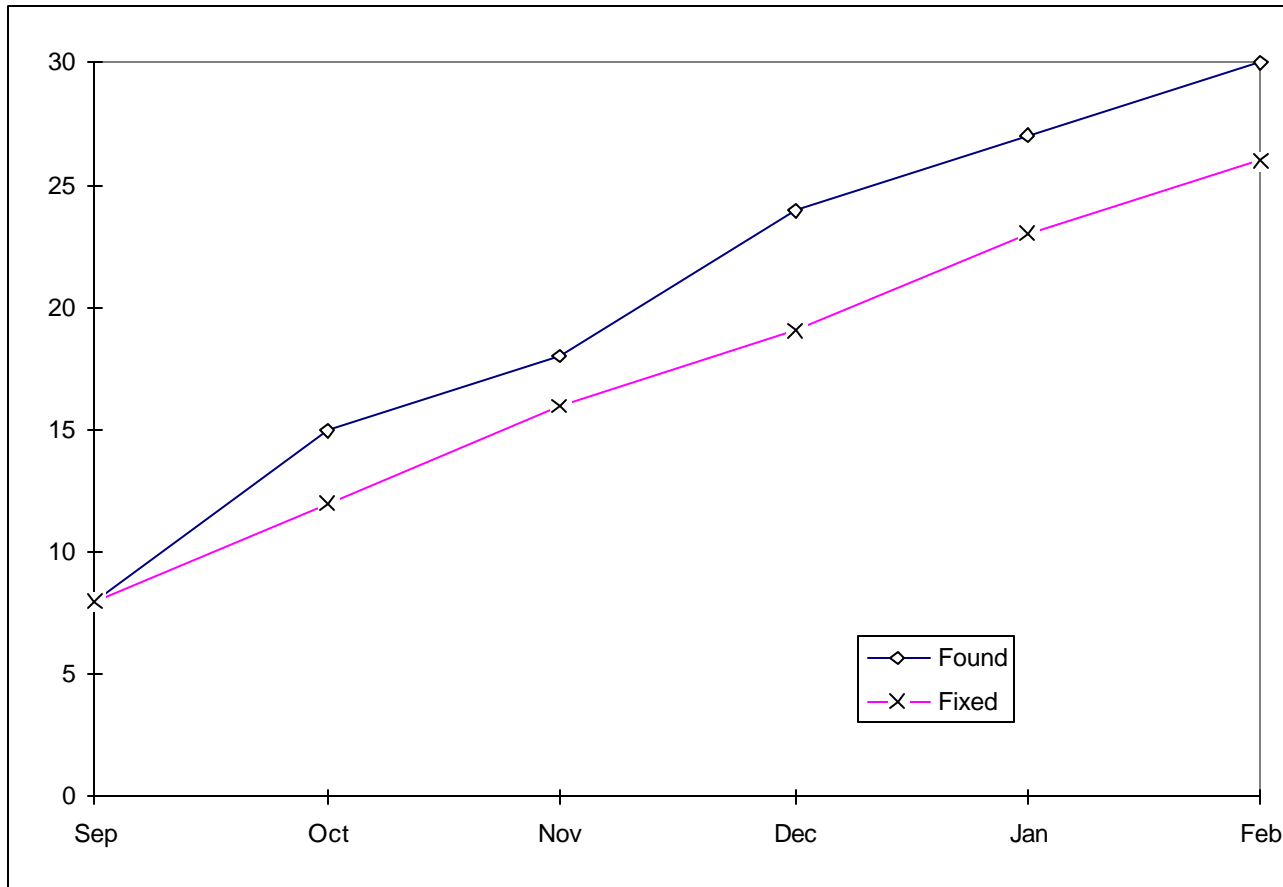
Example Variance Data



Example Performance Indices



Example Software Defect Metric



Lessons Learned

- Develop a WBS structure early
- Detail work activities vs. business processes or organizational structures
- Modeling and automated tools are invaluable for evaluating alternatives
- Planning factors are often underestimated
 - Requirements, Complexity, Productivity, etc.
- Establish a historical database
- Prepare a detailed schedule with linked dependencies

Lessons Learned

- Setting up processes may consume more resources than actually using them
- Computer systems are not perfect - watch for errors and omissions
- Establish a “check and balance” process for all data
- Provide for back-up capabilities - the unexpected may happen
- Analysis takes time and requires an unbiased evaluator

Lessons Learned

- Software metrics are more subjective than financial information
- Determining work completion percentages can be very subjective
- Discrepancies between software metrics and financials will occur
- Not all actual costs will “hit the books” in time for reports
- Estimated actuals need to be adjusted every reporting period

Lessons Learned

- An EVMS requires time and dedicated people to be effective
- EVMS information provides a realistic “picture” of program performance
- Look at the trends vs. the absolute values
- An EVMS approach can be implemented for any program
- View an EVMS as a normal business practice for large projects
- You’ll learn to depend on EVMS information

Summary

- An EVMS:
 - Requires thorough planning
 - Facilitates baselines and control
 - Provides evidence of performance against a plan
 - Can be used all management levels
 - Can be used to manage risk
 - Requires discipline
 - Becomes a way of doing business